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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/772,894	01/31/2001	Junichi Akiyama	202594US2RD	1087

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EXAMINER

PSITOS, ARISTOTELIS M

ART UNIT PAPER NUMBER

2653

DATE MAILED: 10/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/772,894	<b>Applicant(s)</b> AKIYAMA ET AL.	
	<b>Examiner</b> Aristotelis M Psitos	<b>Art Unit</b> 2653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 September 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-8 and 16-24 is/are pending in the application.
- 4a) Of the above claim(s) 16-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-8 and 20-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date, _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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**DETAILED ACTION**

Applicants' response of 9/3/04 has been considered with the following results.

The submission of the Terminal disclaimer overcomes the previous DP rejections as stated in paragraph 3-7 of the previous OA.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 2,7, 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Tanaka considered with JP 11-265520/Ito et al, or as discussed below in paragraphs.

With respect to the independent claims 2 and 21, the following analysis is made.

Tanaka discloses a near field thermally assisted magnetic recording system. Tanaka further discloses an aperture less than the wavelength of the laser beam - see either the abstract or col. 8, lines 3 through 10. There is no particular orientation as recited by the claimed limitations. See also the discussion at col. 6 lines 1-26, which give various wavelengths and spot diameters.

The Japanese reference, alternatively the Ito document that is the U.S. equivalent thereof, as noted in column 6 with respect to figure 4b further teaches such.

It would have been obvious to modify the base system of Tanaka with the above teaching from the JP document for the reasons discussed therein and as indicated in the submitted OA from the JP office/part of the IDS submitted on 10/2/03 as stated therein with respect to paragraphs 24-26 and figure 4b in the JP document.

Ito et al teach in this environment the use of optical collecting elements for their inherent use of focusing light -- see the discussion with respect to element 76 in figure 14a.

It would have been obvious to modify the base system of Tanaka with the above light-collecting element taught by the JP/Ito et al document, motivation is to permit proper focusing of the light spot upon the record medium.

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The limitations of claim 20, along with the actuating mechanism and the recording material limitations of claim 22 are met by Tanaka, see the discussing with the driving mechanism in the third aspect/embodiment at col. 3, lines 45-50.

With respect to claims 23 and 24, the film in Tanaka meets the newly presented claims.

***Response to Arguments***

Applicant's arguments filed 9/3/04 have been fully considered but they are not persuasive.

Applicants' present 2 arguments:

- a) the primary reference is silent as to the direction of polarization,
- b) the secondary reference fails to teach the adaptation of the aperture,
- c) the reference fail to suggest combination of the two documents.

The examiner refers applicants' attention to col 6 line 14 to col. 8 line 25 in the primary reference with respect to direction of polarization.

The secondary reference was relied upon for the reasons presented in the Japanese OA submitted with the IDS of 10/02/03 with respect to figures 4b and paragraphs 24-26 in the Jap. Document.

The examiner maintains such.

With respect to lack of motivation the examiner respectfully disagrees.

The reason(s) presented by the JP OA with respect to figure 4b have not been over-turned by applicants' arguments. Alternatively, as noted in the secondary reference, there is a plurality of different dimensional shapes given to the aperture arrangement and selection of one shape over another shape is either a selection between equivalents, since no unexpected results have been claimed.

2. Claims 3,4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claims 2,7, 20-24 as stated in paragraph 1 above, and further in view of Kobayashi et al.

Kobayashi et al teaches the appropriate dielectric arrangement in his laser aperture system (element 6).

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With respect to the range value of claim 4, such is met by the thickness of the insulating material (6) in the Kobayashi et al reference, i.e., 1600 angstroms is within the range specified.

It would have been obvious to modify the base system of the references relied upon above with the additional teaching from Kobayashi et al for the reasons noted in col. 2 lines 35-49.

***Response to Arguments***

Applicant's arguments filed 9/3/04 have been fully considered but they are not persuasive. The dependent claims fall accordingly.

3. Claims 5 & 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claims 2,7, 20-24 as stated in paragraph 1 above, and further in view of the ISOM Technical digest article.

With respect to the limitations of claims 5 and 6 the examiner relies upon the discussion of the ISOM article with respect to the loss versus mode of operation – section 2 of the article as it applies to the width requirements of claim 5 and the mode of operation (TM) of claim 6.

It would have been obvious to modify the base system of Tanaka considered with JP 11-265520/Ito et al with the above teaching from the ISOM article, motivation is to provide for a better throughput of the optical power for narrow slits in this environment (high density recording) and insure proper signal recording.

***Response to Arguments***

Applicant's arguments filed 9/3/04 have been fully considered but they are not persuasive. The dependent claims fall accordingly. Alternatively, if applicants' can convince the examiner that there is no motivational reason in the Tanaka and Ito documents, then these dependent claims along with the claims listed in paragraph 1 above and the reason(s) for selecting the particular orientation of the aperture shape is to insure a higher density recording ability as further explained in the ISOM Technical digest article.

4. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claims 2,7, 20-24 as stated in paragraph 1 above, and further in view of Mononobe ET al-WO98/10296.

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The examiner is providing a copy of US 6,236,783 as the English translation of the WO document, and no copy of the WO document to applicants.

Tanaka and JP 11-265520/Ito et al are relied upon as stated in paragraph 8 above with respect to the base claim 2.

With respect to the limitation of claim 6 (TM) mode of laser oscillation and the aperture of is filled with a dielectric material such is taught by the WO document – see col. 18, lines 10-16.

It would have been obvious to modify the base system of Tanaka, JP 11-265520/Ito et al with the above teaching of the Mononobe et al document, motivation is as discussed in Mononobe et al to reduce loss in the TM mode. The examiner concludes that the TM mode of operation of the oscillator is what the TM mode in this passage is referring.

#### ***Response to Arguments***

Applicant's arguments filed 9/3/04 have been fully considered but they are not persuasive. The dependent claims fall accordingly.

12. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable the art as applied to claims 2,7,20-24 as stated in paragraph 1 above further considered with the Kann et al article.

Claim 5 describes the absorption loss through the aperture. The examiner interprets this claim to mean that such a loss is peculiar to the type of operational mode, i.e., the TM mode as depicted in figures 8-12 of this application. If this is incorrect, then applicants' cooperation is respectfully requested in interpreting this claim.

The Kann et al article, note section 4 in particular, discusses the differences between absorption in the TE vs. the TM mode of operation in this environment. See also the discussion of figure 5. The examiner concludes that the differences between the modes of operation (as noted in figure 5) meet the claimed limitation of "10 times as much" absorption loss.

It would have been obvious to modify the base system of Tanaka considered with JP 11-265520/Ito et al with the above teaching from the Kann et al article, motivation is to use the difference is

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heat loss in the TM vs. TE mode of operation to increase the heating ability in the record medium in order to provide for proper near-field recording parameters – i.e., the use of heat/thermal in the near-field heat assisted magnetic recording.

### ***Response to Arguments***

Applicant's arguments filed 9/3/04 have been fully considered but they are not persuasive. The dependent claims fall accordingly. Alternatively, if applicants' can convince the examiner that there is no motivational reason in the Tanaka and Ito documents, then these dependent claims along with the claims listed in paragraph 1 above and the reason(s) for selecting the particular orientation of the aperture shape is to insure a higher density recording ability as further explained in the Kann article.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

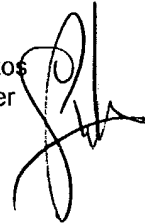
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aristotelis M Psitos whose telephone number is (703) 308-1598. The examiner can normally be reached on M-Thursday 8 - 4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on (703) 305-6137. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Aristotelis M Psitos  
Primary Examiner  
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A handwritten signature in black ink, appearing to be 'APsitos', written over the printed name of the examiner.

AMP